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PREFACE

The CoreConferences 2019 held on 20th – 21st March, 2019, in collaboration with Association of Scientists, Developers and Faculties (ASDF), an International body, at Taipei, Taiwan.

CoreConferences 2019 provides a chance for Academic and Industry professionals to discuss the recent progress in the area of Multiple. The outcome of the conference will trigger for the further related research and future technological improvement. This conference highlights the novel concepts and improvements related to the research and technology.

The technical committee consists of experts in the various course subfields helped to scrutinize the technical papers in various fields, support to maintain the quality level of the proceedings of conference which consist of the information of various advancements in the field of research and development globally and would act as a primary resource of researchers to gain knowledge in their relevant fields.

The constant support and encouragement from Dr. S. Prithiv Rajan, ASDF Global President, Dr. Julie Rue Bishop, ASDF International President and Dr. K. Kokula Krishna Hari, ASDF International General Secretary helped a lot to conduct the conference and to publish the proceedings within a short span. I would like to express my deep appreciation and heartfelt thanks to the ASDF team members. Without them, the proceedings could not have been completed in a successful manner. I would like to express my sincere thanks to our management, student friends and colleagues for their involvement, interest, enthusiasm to bring this proceeding of the conference in a successful way.

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Combating Climate Change and Land Degradation in The West African Sahel: A Multi-Country Study of Mali, Niger and Senegal

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Abstract: *The West African Sahel is a vast ecological zone separating the Sahara Desert to the north and Sudanian savannah to the south; traversing Senegal, Mali, Burkina Faso, Niger, northern Nigeria and Chad. With a population estimated at more than 60 million people, the region features a multiplicity of development challenges. It is home to some of the world's most impoverished people, whose livelihoods are mostly reliant on rain-fed agriculture. Characterized by semi-arid vegetation, the West African Sahel is one of the most environmentally degraded ecosystems in the world. The region faces severe and recurring bouts of droughts since the 1980s, jeopardizing environmental sustainability. During the past four decades, the West African Sahel has witnessed below-average annual precipitation, with two severe drought periods in 1972-1973 and 1983-1984, in a development that undermined agricultural productivity and spawned severe land degradation. Various studies have predicted even more severe climate variability and change in the region, with drier and more frequent dry periods expected. The intergovernmental Panel on climate change (IPCC, 2007) revealed a decline in annual rainfall in West Africa since the end of the 1960s, with a reduction of 20% to 40% observed in the periods 1931-1960 and 1968-1990. Repeated droughts, fuelled by climate change, have undermined land productivity, turning arable soils into marginal lands, and rendering land resources vulnerable to such anthropogenic activities as over-grazing, agricultural intensification and deforestation, which are common practices across the region. The major objective of this paper is to shed light on climate change and land degradation patterns in the West African Sahel. It employs empirical data to analyse the trends, with particular emphasis on Mali, Niger and Senegal. The study reveals considerable threats posed by the twin scourges of climate change and land degradation to food security, environmental sustainability and regional stability. It also presents a policy framework underpinned by climate change mitigation and adaptation strategies, formalizing land rights for farmers, subsidizing farm inputs, creating grazing reserves for pastoralists and deepening poverty reduction strategies.*

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